

IDAHO DEPARTMENT OF FISH & GAME

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RAPID RIVER HATCHERY

Annual Report



1 October 1981 - 30 September 1982

by

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ABSTRACT

During March - April, 1982, approximately 1.5 million spring chinook salmon smolts from the 1980 brood were planted into Rapid River. Due to the low number of smolts this year, no fish were planted below Hells Canyon Dam in the Snake River.

At the beginning of the fish year, approximately 6.1 million eggs were on hand from adults spawned in August and September, 1981. Nearly 1.3 million eyed eggs from this group were shipped to other hatcheries, leaving 3.4 million to be ponded as fingerlings in June and July, 1982.

Net production from this hatchery during the fish year totalled 89,278 pounds (40,489 kg). We fed 125,050 pounds (56,712 kg) of Oregon Moist Pellet feed for a total cost of \$47,466.50. We also fed 1,650 pounds (748 kg) of various dry diets at a cost of \$544.87. The resulting feed conversion was 1.42:1.

The adult salmon trapping facility was operated from 30 April through 25 August 1982. Fish classified as spring chinook salmon, totalling 3,676, entered the Rapid River trap from 11 May through 6 August. An additional 62 fish, classified as summer run, continued to arrive at the trap until it was taken out of operation on 25 August. The peak of this year's salmon run occurred during the week of 11 July, approximately one month later than normal. Other incidental fish species included steelhead, Dolly Varden, rainbow, and cutthroat trout, and whitefish. No rough fish were observed this year.

This year's spring chinook salmon run totalling 3,676 was comprised of 1,526 males, 2,120 females, and 30 jacks, and totalled approximately five percent of the Bonneville Dam and 29 percent of the Lower Granite Dam spring chinook salmon counts. Age-class composition showed 30 three-year-olds (jacks 0.8%), 3,089 four-year-olds (84%), and 557 five-year olds (15%). All spring chinook salmon adults were held for spawning

All spring chinook salmon arriving at the trap were examined and measured. We noted injuries occurring on 16 percent of the run (588 fish). They were listed as follows: Nitrogen blisters (154); Gaff wounds (180); gillnet (134); hooking (8); and other wounds (112). The number of fish classified as trap mortalities totalled 42 this season. Throughout the trapping, holding and spawning season, 148 males and 237 females were classified as pre-spawning mortalities (10.6% of the run).

All except 94 adult spring chinook salmon were administered injections of erythromycin as they arrived at the trap. This has proven to be very beneficial for reducing pre-spawning mortality due to bacterial kidney disease. All mortalities throughout the entire season were examined to determine cause of death. During this time, only 33 fish were found with bacterial kidney disease lesions, of which four were from the uninjected group.

Spawn-taking operations commenced on 16 August and were completed on 15 September ¹982. During this time 1,883 females were spawned to produce approximately 7.4 million eggs. Each female averaged 3,974 eggs, at nearly 105 per ounce in size, with an eye-up success of 92.2 percent for the season. All eggs this year were water-hardened in a two ppm solution of erythromycin. Surplus eggs totalling nearly 2.3 million were distributed to other projects.

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OBJECTIVES

1. To report all project functions of Rapid River Hatchery occurring during the fish year.
2. To evaluate brood year returns of spring chinook salmon and inventory other fish species.
3. To report the distribution of eggs and juvenile spring chinook salmon.
4. To report improvements and project recommendations for the operation of Rapid River Hatchery.

INTRODUCTION

Rapid River Hatchery is located seven miles southwest of Riggins, Idaho, in Region Two. This facility is owned and financed by Idaho Power Company as part of mitigation requirements for losses of spring chinook salmon in the Hells Canyon area of the Snake River. This hatchery produces approximately three million juvenile spring chinook salmon annually. Throughout past years many surplus eggs and fry have been available for distribution to other projects. The water source for all functions of this hatchery is Rapid River, a tributary to the Little Salmon River in Idaho County.

This hatchery project utilizes an adult trapping facility, several adult holding ponds, two earthen rearing ponds, and twelve concrete raceways. Hatchery buildings include an incubator building with 50 double-stacked Heath incubators, an office-shop complex, public restrooms, three employee residences, and several trailers for temporary employee housing.

Spring Chinook Salmon Smolts - 1980 Brood Year

Enumeration of Downstream Migrants

Smolt plants in Rapid River from the 1980 brood year totalled approximately 1,473,733 during the fish year. These fish averaged 111 mm in fork length and 28 per pound (61.7 kg).

Smolt emigration from the hatchery appeared to start during the last week of March 1982. These fish continued to migrate until a final pond flush was completed on 5 April. Due to the low number of available smolts this year, no fish were transported to Hells Canyon.

Coded-wire tagged smolts totalled 83,237 from this brood year release. Complete marking and tagging data are listed in this report under "Special Studies."

Rearing Problems - Diseases and Treatments Used

Disease losses during the fish year on the 1980 brood smolts was minimal, although minor problems did occur. Cold water diseases and some bacterial gill disease problems were controlled with the use of malachite green and Cutrine. Normally, disease losses during this rearing period do not present a problem at this hatchery. Cataracts were also noted on approximately 2.4 percent of these fish..

Conversion Rates - Utilization of Fish Feed

Net production from this hatchery during the fish year totalled 89,278 pounds (40,489 kg). A total of 125,050 pounds (56,712 kg) of Oregon Moist Pellet feed was used at a total cost of \$47,466.50. An additional 1,650 pounds (748 kg) of various dry diet feed was also used at a cost of \$544.87. The resulting feed conversion was 1.42:1.

Spring Chinook Salmon Juveniles - 1981 Brood Year

Enumeration

On 1 October 1981, approximately 6.1 million eggs were on hand in incubators at Rapid River Hatchery. These originated from Rapid River adults spawned in August and September 1981. Eyed-egg shipments from this group totalled nearly 1.3 million, leaving a balance of 4.1 million to be transferred to the raceways as from from December 1981 through mid-March 1982. The resulting juvenile chinook salmon were started on feed when they accumulated between 1,550 and 1,650 temperature units of development. Water temperatures during this period of time ranged from 34 F (1.1 C) to 42 F (5.6 C). Due to this extended period of cold water temperatures, fish growth was very minimal.

During June and early July, approximately 3,307,824 fingerlings were transferred from the raceways to the rearing ponds. Most of these fish averaged near 200 per pound and were not ponded until most of the high water and silt problems were over.

Rearing Problems - Diseases and Treatments Used

Mortality losses on the 1981 brood juveniles were significant this year. Prior to ponding, nearly one-million fish were lost from an unknown cause, coined the "Spring Thing." Research conducted last spring has basically proven our losses are due to nutrition deficiencies. This research data is listed in this report under "Special Studies."

Spring Chinook Salmon Adults - Returns to Rapid River, 1982

Enumeration

Spring chinook salmon totalling 3,676 entered the trap facility from 11 May through 6 August 1982 (Fig. 1). The peak of the run occurred during the week of 11 July, in which nearly 2,100 fish were counted. The run peak this season was about one month later than normal due to excessive high water in the Salmon River drainage.

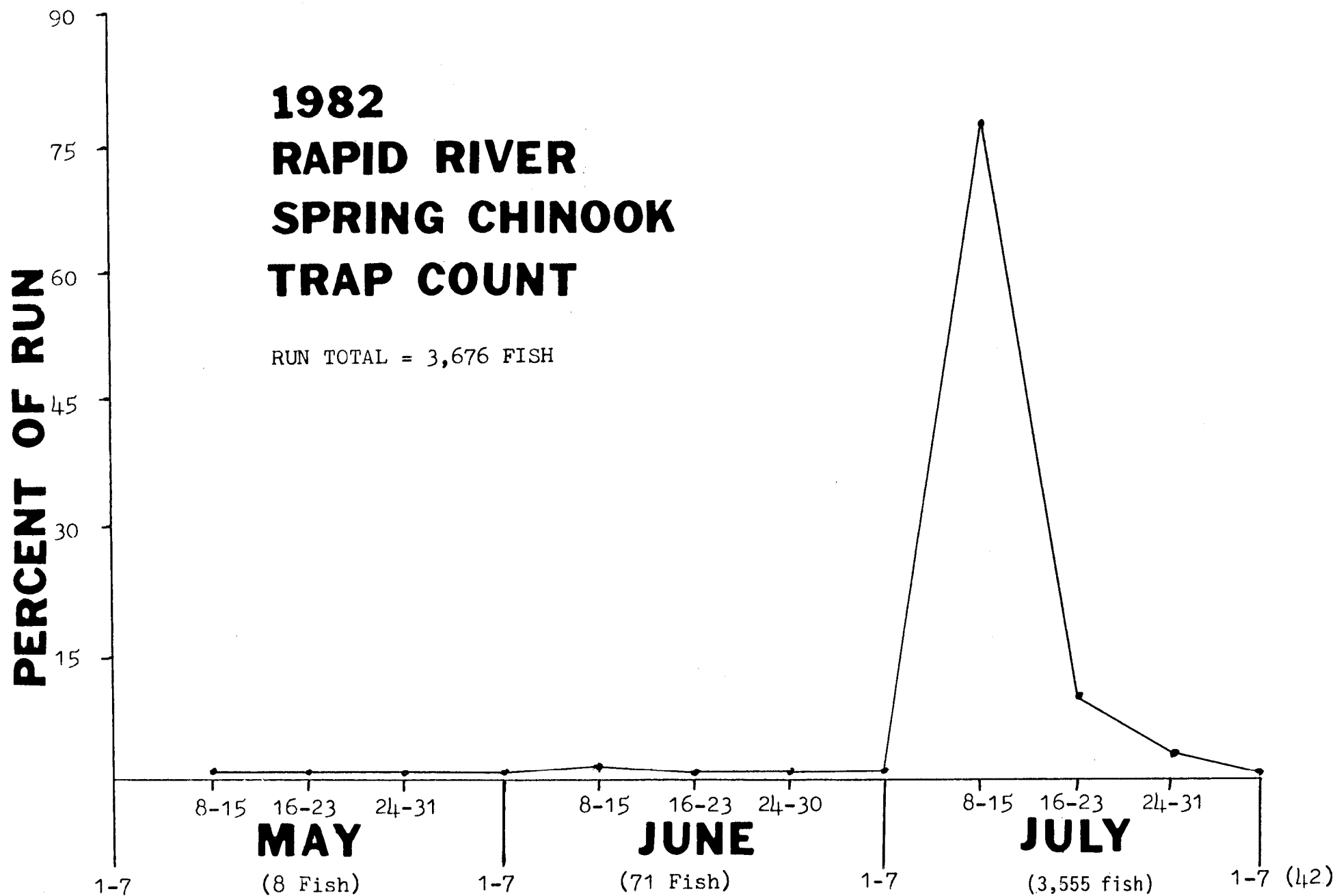
Spring chinook salmon returning to Rapid River Hatchery this season have again made up a significant portion of Idaho's salmon run and represents approximately five percent of the Bonneville Dam and 29 percent of the Lower Granite Dam counts.

The run total this season was comprised of 1,526 males, 2,120 females, and only 30 jacks. Age-class composition of the run showed 30 three-year-olds (.82%); 3,089 four-year-olds (84.0%), and 557 five-year-olds (15.2%). Age-class composition was again determined by lengths and coded-wire tag recovery data.

Observations of Injuries

Injuries this season were noted on approximately 16 percent of the run (588 fish). These injuries were classified as follows: incidence of nitrogen blisters (154 fish); Gaff wounds (180 fish); gillnet (134); hooking (8 fish); other wounds (112 fish). A direct application of malachite green solution was used on all injuries prior to hauling and ponding chinook adults. Injuries occurring at the trap were reduced this season by the modification of the attraction water channel.

Figure 1. Weekly arrival numbers, 1982 spring chinook returns.



Marked Returns - Coded-Wire Tag Data

All chinook entering the Rapid River trap were examined for tags and marks. Jaw tag numbers were recorded and all adipose fin-clipped fish were dart tagged to aid recapture at spawning time. Snouts were later taken and sent to the Lewiston Lab for tag recovery. During the season, a total of 69 tags were recovered from fish returning to the Rapid River trap (Table 1). Complete tag analysis data is available upon request.

Pre-spawning Mortality - Treatment of Adults

Pre-spawning losses totalled 148 males and 237 females, with trap mortalities accounting for 42 of these (10.6% of the run). Losses due to kidney disease were again kept minimal with the use of drug injections of erythromycin administered subcutaneously at the rate of 5 mg per pound of fish body weight. All except 94 adults had single drug injections as they arrived at the trap.

Throughout the entire holding and spawning season, nearly every carcass was checked for bacterial kidney disease lesions and exact cause for mortality. A total of only 37 fish were noted to contain bacterial kidney disease lesions, of which four were from the uninjected group.

Fish showing symptoms of jaundice totalled 22 this year. All of these had been injected with erythromycin. The incidence of fish with jaundice was significantly higher than last year.

Mortality losses due to fungus were virtually non-existent this year. Malachite green flushes at one ppm were used every other day throughout the holding and spawning season. This has proven to be very effective control for fungus on chinook salmon adults.

Spawntaking and Enumeration of Eggs

Spawntaking started on 16 August and was completed on 15 September. During this time, 1,883 females were spawned to produce 7,482,330 eggs. Each female averaged 3,974 eggs, at nearly 105 eggs per ounce (3.55/ml) in size.

All eggs taken this year were water-hardened in a two ppm solution of erythromycin. Eggs were then placed in Heath incubators and developed to eye-up at an average rate of 92.2 percent.

Table 1. Summary of coded-wire tag returns to Rapid River Hatchery, 1982.

		<u>3-yr.-olds</u>	<u>4-yr.-olds</u>	<u>5-yr.-olds</u>
Length		'79 brood	'78 brood	'77 brood
Cm.	In.	'81 release	'80 release	'79 release
43.2	17	1.		
45.7	18			
48.3	19			
50.8	20			
53.3	21			
55.9	22			
58.4	23			
60.9	24			
63.5	25			
66.0	26			
68.6	27		4	
71.1	28		6	
73.7	29		4	
76.2	30		6	4
78.7	31		4	2
81.3	32		1	9
83.8	33		1	10
86.4	34			4
88.9	35		1	6
91.4	36			3
94.0	37			1
96.5+	38+			2
Total		1	27	41

Total coded-wire tagged fish collected at hatchery trap = 69.

Distribution of Eggs

Surplus eggs totalling 2,325,429 were available this season for other projects. These were distributed as follows: Pahsimeroi Hatchery, Idaho, 1,332,000 eyed eggs; Dworshak National Hatchery, Idaho, 375,028 eyed eggs; Hagerman National Hatchery, Idaho, 125,055 eyed eggs; Lookingglass Hatchery, Oregon, 493,346 green eggs. Eggs kept at Rapid River Hatchery totalled nearly 4.6 million.

Disposition of Carcasses

Throughout the trapping, holding, and spawning seasons, most carcasses were either buried or stored in a mobile freezer. Some of these carcasses will be used for a bear research project in the following year. A small number of salvageable carcasses, including all jacks, were distributed to charity by Idaho Department of Fish and Game enforcement personnel.

INVENTORY OF MISCELLANEOUS SPECIES

Summer Chinook Salmon

Chinook salmon totalling 62 were classified as summer-run from 10 August through 25 August 1982. These fish were examined for marks, etc., and returned to Rapid River to spawn naturally.

Steelhead

During June and July 1982, a total of 109 steelhead were examined and returned to Rapid River to spawn.

Dolly Varden

During the time the trap was in operation, a total of 88 Dolly Varden were observed. These fish varied in size to a maximum total length of 18 inches (457 mm).

Other Species

In addition to the species listed above, incidental numbers of rainbow, cutthroat trout, and whitefish were also observed. No rough fish were recorded this season.

SPECIAL STUDIES

Fish Examination - Adult Viral Check

Thirty-one samples of ovarian fluid from our four female adult salmon were collected by Oregon Department of Fish and Wildlife personnel on 27 August 1982. The samples were taken to Corvallis, Oregon, for lab examination by pathologist Warren Groberg. Lab results indicated that seven of the 31 sampled contained Infectious Hematopoietic Necrosis (IHN) virus. As a result of the findings, all eggs previously given to Oregon were rejected and transferred to Dworshak National Fish Hatchery, Idaho.

Vibrio Vaccination

In an attempt to reduce mortalities in spring chinook salmon due to Vibrio Anguillarum, a vaccination project was conducted in mid-February 1982. We used 41,129 pre-smolts at 32-34 fish per pound for this project. An additional 42,108 fish were used as controls. Equipment used consisted of a shower vaccination system in which fish would pass through a bacterin shower for approximately five seconds. The fish were then held for nearly two weeks, in which no abnormal mortality was observed. Complete evaluation data is available upon request.

Coded-Wire Tagging

During the week of 23 February through 26 February 1982, the tagging crew marked 83,237 pre-smolts with an adipose fin-clip and coded-wire tag. The objective of this project was to evaluate later returns of vibrio vaccinated versus non-vaccinated spring chinook salmon. In conjunction with the coded-wire tagging, 11,072 of these pre-smolts were also branded. These fish averaged 32-34 per pound and approximately 110 mm in fork length. Specific data regarding this marking project is available upon request.

Fish Feed Experiment

During the year, several feed diets were used to test the nutritional deficiency theory as a cause for the high mortality in our fingerlings during the spring months. The diets used were:

- Experiment #1 - OMP II (Control diet)
- Experiment #2 - OMP IV
- Experiment #3 - "New Age" dry diet
- Experiment #4 - OMP II with oxytetracycline hydrochloride

All feeds were obtained from Moore-Clark Co., LaConner, Washington. These diets were used for three experiments on 350,000 fish groups from the same egg lot. An additional experiment using oxytetracycline hydrochloride, 100% active, was used for a six-week period on another raceway group. This antibiotic was mixed with OMP II daily at the rate of 1.75 grams active ingredient per pound of feed.

These feed experiments were conducted from mid-February through May 1982, in which daily mortality and fish condition were recorded. Throughout the duration of these experiments, no appreciable benefits were attained from the dry diet or the diet mixed With oxytetracycline hydrochloride. The OMP IV diet, however, did appear to show some promise. In this group of fish, mortalities were virtually non-existent. Very few "pinheads" were observed, and fish growth far surpassed that of fish fed the other diets. In the oncoming year we plan to use OMP IV exclusively during the time juvenile chinook salmon are in the raceways.

Other feed experiments conducted by the fishery staff at the University of Idaho also concluded that our "Spring Thing" mortalities were due to a nutritional problem. This research data is also available upon request.

HATCHERY IMPROVEMENTS AND MAINTENANCE

Several major improvements were accomplished during the year at Rapid River Hatchery. The most outstanding improvement was the relocation of the attraction water channel at the trap. We feel this has eliminated unnecessary delay of fish entering the trap, and therefore has reduced injuries due to jumping. Other work done this past spring on the trap included a new aluminum floor and front pickets. A new metal bridge was installed over the diversion dam, replacing an old, wooden structure.

Some minor repair was done on the incubation filter bed, a storage building was modified, and wooden pond panels were replaced in one adult holding pond. Other routine maintenance jobs included painting, feeder and headgate screen repair, and incubator parts replacement. New raceway screen frames were constructed and some minor repair was done on the residences.

MISCELLANEOUS ACTIVITIES

During the year approximately 3,700 people visited Rapid River Hatchery. This included several tours provided for local school groups.

Personnel from this station provided assistance on check stations and with hunter safety classes.

Other activities during the year included water sampling for the Environmental Protection Agency (EPA), the Idaho Department of Health and Welfare, the University of Idaho, and the U. S. Forest Service.

RECOMMENDATIONS

In the past year we feel some progress has been made toward upgrading the condition of this hatchery. At the time of this writing, plans are being made to modify the headgate screening system, improve the incubation system, and repair problem areas at the trap. These items have been on the top of the priority list for many years. Other items that need consideration include: improving temporary housing, fish feeder replacement, constructing new pond outlet screens, residence repair, and reviewing budgeting procedures.

ACKNOWLEDGEMENTS

The crew at Rapid River Hatchery would like to express their appreciation for assistance given during the year by the following people: Rodney Duke; Michael Graham; Dr. G. W. Klontz and the staff from the University of Idaho; Idaho Department of Fish and Game enforcement personnel; Larry Wimer and staff; and the Idaho Power Company maintenance crew.

Hatchery staffing during the year included: Thomas G. Levendofske, Fish Hatchery Superintendent III; Thomas L. Rogers, Fish Hatchery Superintendent I; Jerry McGehee, Fish Culturist; Michael Graham, Fish Hatchery Superintendent I; Corky Davis and Todd Garlie, Bio Aides; Ross Clay and Brian Potter, Laborers; Brian Butler and Rick Travis, CETA workers.

APPENDICES

Appendix 1. Returns of Spring Chinook Salmon to Rapid River Hatchery, survival to spawning, and enumeration of eggs, 1964-1982

Return Return Year	Snake R. Returns (Adults)	Rapid R. Returns (Adults)	Rapid R. Returns (Jacks)	*Prespawning Mortality Percentage	Number of Females Spawned	Number of Eggs per Female	Number of Eggs Taken
1964	349			16%	182	4,874	887,000
1965	408			21%	133	4,541	604,000
1966	1,511			18%	621	3,697	2,296,000
1967	974..		1,039	11%	581	3,537	2,055,000
1968	351	3,416	740	2%	1,809	3,671	6,540,000
1969	672	2,817	1,043	8%	¹ ,4 ¹ 5	3, ⁶ 55	5,151,697
1970		6,470	887	10%	3,520	4,136	111,560,280
1971		3,357	1,754	19%	1,722	3,507	6,038,785
1972		12,310	943	15%	3,825	3,941	15,072,604
1973		17,054	286	37%	3,454	3,912	13,510,455
1974		3,457	538	27%	1,756	3,924	6,890,186
1975		4,4 ² 8	573	7%	2,184	3,894	8,503,606
1976		6,3)42	1,765	1596	3,055	3,762	11,492,878
1977		7,767	437	11%	3,781	3,745	111,160,330
1978		5,735	34	21%	2,350	4,266	10,02.6,888
1979		3,054	350	31%	1,141	4,950	5,648,722
1980		1,528	1 ₁ 32	30%	543	3,235	1,756,827
1981		3,087	176	7%	1,666	3,675	6,122,273
1982		3,646	30	11%	1,883	3,973	7,482,330

*In recent years, prespawning mortality included any female mortality prior to spawning and all male mortality up to two weeks after the beginning of egg taking operations.

Appendix.2. Length frequencies of Spring Chinook entering Rapid River trap, 1975 - 1982.

Length									
<u>cm</u>	<u>in.</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
33.0	13	0	0	0	1	0	1	1	0
35.6	14	0	0	0	0	0	0	0	0
38.1	15	5	4	1	2	4	4	8	0
40.6	16	21	50	12	7	11	19	25	6
43.2	17	93	114	28	1	30	52	47	6
45.7	18	114	311	77	4	61	103	56	1
48.3	19	139	463	¹ 15	4	93	120	23	5
50.8	20	114	445	110	2	88	95	14	8
53.3	21	41	233	58	9	39	35	2	4
55.9	22	15	75	19	4	18	18	25	7
58.4	23	31	30	7	16	6	78	54	18
60.9	24	69	40	10	67	7	178	154	73
63.5	25	126	143	84	240	57	311	455	235
66.0	26	377	361	292	655	69	376	772	504
68.6	27	736	869	879	1,025	75	298	764	807
71.1	28	1,106	1,324	1,848	895	47	137	428	703
73.7	29	920	1,224	2,138	512	40	57	174	390
76.2	30	521	858	1,221	242	88	25	58	202
78.7	31	187	443	648	238	214	7	61	150
81.3	32	110	232	245	362	414	11	58	181
83.8	33	96	217	122	483	525	10	43	158
86.4	34	77	215	92	458	485	11	28	117
88.9	35	51	176	74	303	455	8	10	55
91.4	36	27	151	38	136	291	4	2	26
94.0	37	13	78	26	63	131	0	1	16
96.5+	38+	12	51	37	40	112	2	0	4
Total Run		5,001	8,170	8,181	5,769	3,361	1,960	3,263	3,676

Appendix 3. Summary of Spring Chinook Adults to Rapid River by Brood Year.

Brood Year	Year Released	Number Released	3 yr olds	year returned	4 yr olds	year returned	5 yr olds	year returned	Total Brood
1964.	1966	588,000	1,039	1967	3,422	1968	197	1969	4,658
1965	1966-67	480,000	740	1968	2,620	1969	874	1970	4,234
1966	1968	1,460,000	1,043	1969	5,596	1970	364	1971	7,003
1967	1969	900,000	887	1970	2,992	1971	1,544	1972	5,416
1968	1970	3,172,000	1,754	1971	10,76	1972	4,403	1973	16,923
1969	1971	2,718,700	943	1972	12,65	1973	1,759	1974	15,356
1970	1972	2,809,200	285	1973	1,698	1974	386	1975	2,370
1971	1973	2,908,425	538	1974	4,206	1975	1,120	1976	5,864
1972	1974	2,707,917	573	1975	5,222	1976	634	1977	6,429
1973	1975	3,373,700	1,765	1976	7,110	1977	1,845	1978	10,720
1974	1976	3,358,940	437	1977	3,890	1978	2,413	1979	6,740
1975	1977	3,170,922	34	1978	598	1979	46	1980	678
1976	1978	2,413,678	350	1979	1,482	1980	146	1981	1,978
1977	1979	2,866,993	432	1980	3,068	1981	557	1982	4,057
1978	1980	2,811,593	176	1981	3,089	1982	-	(1983)	-
1979	1981	2,520,045	30	1982	-	(1983)	-	(1984)	-
1980	1982	1,473,733	-	(1983)	-	(1984)	-	(1985)	-

Appendix 4. Summary of Eggs, Fingerlings, and Smolts planted from Rapid River Hatchery, 1964 – 1982

1964 Brood:	887,000 eggs taken. No eggs, fingerlings, or smolts planted or transferred, 580,000 smolts released into Rapid River, 1966. 22.6/lb.
1965 Brood:	604,000 eggs taken. No eggs, fingerlings, or smolts planted or transferred. 480,000 smolts released into Rapid River, 1967. 23.2/lb
1966 Brood:	2,296,000 eggs taken. No eggs, fingerlings, or smolts planted or transferred. 1,460,000 smolts released into Rapid River, 1967. 25.0/lb.
1967 Brood:	2,055,000 eggs taken. No eggs, fingerlings, or smolts planted or transferred. 900,000 smolts released into Rapid River, 1969. 24.0/lb.
1968 Brood	6,540,000 eggs taken. 757,376 eyed eggs shipped to Clearwater River drainage hatching channels. No fingerlings or smolts planted or transferred. Nearly 2,000,000 Smolt sized fish were lost to Kidney Disease in early 1970. 3,172,000 smolts released into Rapid River, 1970. 20.0/lb.
1969 Brood	5,171,697 eggs taken. <u>407,000</u> eyed eggs shipped to Dworshak Nat'l Hatchery to start Kooskia Nat'l Hatchery. 4,300,000 eggs kept at Rapid River. No fingerlings planted or transferred, 1970. 2,718,720 smolts released into Rapid River, 1971. 21.0/lb.
1970 Brood:	14,560,280 eggs taken. 4,417,454 green eggs shipped to Sweetwater Eyeing station for Clearwater reintroduction. 2,224,119 green eggs shipped to Kooskia Nat'l Hatchery. 526,516 green eggs shipped to Hayden Creel Hatchery. <u>2,473,983</u> eyed eggs shipped to Clearwater River drainage hatching channels. 9,642,072 eggs shipped. 4,607,736 eggs kept at Rapid River
Fingerling plants, 1971.	200,520 planted in the Lemhi River. 353,970 planted in Decker Pond. 100,000 transferred to Sandpoint Hatchery.

Appendix 4 (Continued)

	654,584	fingerlings planted or transferred.
Smolt Planted, 1972.		
	91,800	planted in the Lochsa River.
	2,809,200	released into Rapid River. 19.4/lb.
1971 Brood:	6,038,785	eggs taken.
	<u>600,496</u>	eyed eggs shipped to Hayden Creek Hatchery.
	5,438,289	eggs kept at Rapid River.
Fingerling plants, 1972		
	53,562	planted in the Lemhi River.
	104,300	planted in Red River.
	29,800	planted in Ten Mile Creek (Clearwater).
	44,700	planted in American River.
	14,900	planted in Papoose Creek.
	59,600	planted in Brushy Fork.
	44,700	planted in Fish Creek.
	14,900	planted in Post Office Creek.
	44,700	planted in Squaw Creek (Lochsa).
	61,500	planted in Lochsa River.
	60,000	planted in Ten Mile Creek (Clearwater).
	200,880	transferred to Sandpoint Hatchery.
	174,300	transferred to Decker Pond.
	74,700	transferred to Decker Pond.
	<u>152,305</u>	transferred to Decker Pond.
	1,134,847	total fingerlings planted or transferred.
Smolt Plants, 1973.		
	197,303	planted in the South Fork of the Clearwater River drainage.
	2,908,425	released into Rapid River. 17.0/lb.
1972 Brood:	15,072,604	eggs taken.
	5,256,662	green eggs shipped to Sweetwater Eyeing Station. (Clearwater reintroduction).
	1,881,024	green eggs shipped to Hayden Creek Hatchery.
	1,131,334	eyed eggs shipped to Hayden Creek Hatchery.
	<u>1,293,592</u>	eyed eggs shipped to Red River Hatching Channel.
	9,562,612	total eggs shipped.
	4,878,017	eggs kept at Rapid River.
Fingerling plants, 1973.	None	

Appendix 4 (Continued)

Smolt Planted, 1974.	None	
	2,707,917	released into Rapid River. 17.5/lb.
1973 Brood:	13,510,464	eggs taken.
	3,915,900	green eggs shipped to Sweetwater Eyeing Station (Clearwater reintroduction).
	1,295,424	green eggs shipped to Hayden Creek Hatchery.
	104,760	green eggs shipped to Hagerman Hatchery.
	502,200	eyed eggs shipped to Crooked River Hatching Channel.
	702,000	eyed eggs shipped to Kooskia Nat'l Hatchery.
	806,400	eyed eggs shipped to Hayden Creek Hatchery.
	<u>504,000</u>	eyed eggs shipped to Minnesota for Walleye trade.
	7,830,684	total eggs shipped.
	5,302,677	eggs kept at Rapid River.
Fingerling plants, 1974		
	210,734	transferred to Sandpoint Hatchery.
	206,360	transferred to Kooskia Nat'l Hatchery.
	36,400	planted in Ten Mile Creek.
	52,080	planted in Ten Mile Creek.
	18,200	planted in Newsome Creek
	633,000	planted in the Lemhi River
	<u>10,428</u>	planted in Capehorn Creek.
	1,167,202	total fingerlings planted or transferred.
Smolt Plants, 1975.		
	117,000	planted in the S.F. of the Clearwater River.
	3,373,700	released into Rapid River. 14.8/lb.
1974 Brood:	6,890,186	eggs taken.
	809,400	green eggs shipped to Hayden creek Hayden Creek Hatchery.
	<u>407,012</u>	eyed eggs shipped to Indian Creek Hatching Channel.
	1,216,412	total eggs shipped.
	5,203,276	eggs kept at Rapid River.
Fingerling plants, 1975.		
	203,500	transferred to Sandpoint Hatchery.
	21,840	planted in Capehorn Creek.
	59,962	planted in Red River.
	30,750	planted in Newsome Creek.
	10,250	planted in Ten Mile creek.
	<u>1,140,300</u>	planted in the Lemhi River.
	1,466,602	fingerlings planted or transferred.

Appendix 4 (Continued)

Smolt Planted, 1976.

	205,700	Planted in the S.F. of the Clearwater River.
	3,564,640	released into Rapid River. 18.4/lb.
1975 Brood:	8,503,606	eggs taken.
	2,363,200	green eggs shipped to Sweetwater Eyeing Station (Clearwater reintroduction).
	252,200	green eggs shipped to Mullan Hatchery.
	255,000	green eggs shipped to Hayden Creek Hatchery.
	<u>280,659</u>	eyed eggs shipped to Indian Creek Hatching Channel.
	3,151,659	eggs shipped.
	4,906,492	kept at Rapid River.

Fingerling plants, 1976

34,000	planted in Ten Mile Creek.
156,000	planted in the Lemhi River.
65,960	planted in the S.F. of the Clearwater River.
206,400	planted in Decker Pond.
206,400	planted in Decker Pond.
209,950	transferred to Sandpoint Hatchery.
<u>36,143</u>	planted in Bear Valley Creek (upper Hayden Creek drainage).
914,844	total fingerlings planted or transferred.

Smolt Plants, 1977.

249,750	planted in the S.F. of the Clearwater River.
3,170,922	released into Rapid River. 15.9/lb.

1976 Brood:	11,492,878	eggs taken.
	1,161,608	green eggs shipped to Mullan Hatchery.
	2,937,994	green eggs shipped to Sweetwater Eyeing Station (Clearwater reintroduction).
	261,900	eyed eggs shipped to Hayden Creek Hatchery.
	261,900	eyed eggs shipped to Sandpoint Hatchery.
	<u>1,267,208</u>	eyed eggs shipped to Mackay Hatchery.
	6,344,610	total eggs shipped.
	5,009,482	kept at Rapid River.

Fingerling plants, 1977.

47,008	Shipped to the University of Idaho, Fisheries Co-op Unit.
311,850	shipped to Mackay Hatchery.
104,500	planted in Lolo Creek.
501,600	transferred to Red River Pond.
<u>80,600</u>	planted in the S.F. of the Clearwater River
1,045,558	fingerlings planted or transferred.

Appendix 4 (Continued)

Smolt Planted, 1978.

	2,413,678	None planted. released into Rapid River. 15.7/lb.
1977 Brood:	14,160,330	eggs taken.
	2,633,400	green eggs shipped to Sweetwater Eyeing Station (Clearwater reintroduction).
	2,287,800	green eggs shipped to Kooskia Nat'l Hatchery.
	2,439,000	green eggs shipped to Mullan Hatchery.
	250,200	green eggs shipped to Mullan Hatchery.
	288,000	green eggs shipped to Hayden Creek Hatchery.
	20,700	eyed eggs shipped to the University of Idaho.
	<u>1,007,340</u>	eyed eggs shipped to the Crooked River Hatching Channel.
	8,926,440	total eggs shipped.
	5,098,587	eggs kept at Rapid River.
Fingerling plants, 1978		
	723,000	transferred to Mackay Hatchery.
	50,800	transferred to Decker Pond.
	200,025	transferred to Red River Pond.
	<u>265,600</u>	planted in the Lemhi River.
	1,239,425	total fingerlings planted or transferred.
Smolt Plants, 1979		
	44,373	planted in Newsome Creek.
	<u>156,362</u>	planted in White Sands Creek.
	200,735	total smolts planted.
	3,018,448	released into Rapid River. 15.0lb.
1978 Brood:	10,026,888	eggs taken.
	767,322	green eggs shipped to Hayden Creek Hatchery.
	970,728	green eggs shipped to Mackay Hatchery (500,000 eyed eggs to be shipped to Oregon).
	1,540,282	green eggs shipped to Sweetwater Eyeing Station (Clearwater reintroduction).
	706,936	green eggs shipped to Dworsak Nat'l Hatchery.
	38,160	eyed eggs shipped to the University of Idaho.
	10,864	eyed eggs shipped to Mackay Hatchery.
	1,250,010	eyed eggs shipped to the Crooked River Hatching Channel.
	<u>249,969</u>	eyed eggs shipped to Sweetwater Eyeing Station (Clearwater reintroduction).
	5,534,271	total eggs shipped.
	4,219,846	eggs kept at Rapid River.

Appendix 4 (Continued)

Fingerling plants, 1979.

232,500	transferred to Red River Pond.
<u>10,000</u>	planted in Ten Mile Creek.
242,500	fingerlings planted or transferred.

Smolts planted, 1980.

157,440	planted in White Sands Creek.
2,811,593	released into Rapid River. 15.0/lb.

1979 Brood:

5,646,722	eggs taken.
806,400	eyed eggs shipped to Hayden Creek Hatchery.
<u>330,880</u>	eyed eggs shipped to Dworshak Nat'l Hatchery.
1,137,280	total eggs shipped.
4,511,442	eggs kept at Rapid River.

Fingerling plants, 1980.

293,240	planted in Red River Pond.
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Smolt plants, 1981.

1,001,700	planted in the Snake River at Hells Canyon Dam. 21.0/lb.
<u>2,375,715</u>	released into Rapid River. 17.9/lb.
3,377,415	total smolts planted or released.

1980 Brood:

1,756,827	eggs taken.
	no eggs shipped.

Fingerling plants, 1981.

none.

Smolt plants, 1982.

1,473,733	released into Rapid River. 28.0/lb.
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1981 Brood:

6,122,273	eggs taken.
608,384	eyed eggs shipped to Pahsimeroi Hatchery.
256,608	eyed eggs shipped to Oxbow Hatchery (Oregon).
<u>449,280</u>	eyed eggs shipped to Dworshak Nat'l Hatchery.
1,314,272	total eggs shipped.
4,409,036	eggs kept at Rapid River.

Appendix 4. (Continued).

Fingerling plants, 1982.

none.

Smolt on hand, September 30, 1982.

3,284,056 on hand.

1982 Brood:

7,420,450 eggs taken.

493,346 green eggs shipped to Looking Glass Hatchery (Oregon). These were later shipped to Dworshak Nat'l Hatchery.

669,500 eyed eggs shipped to Pahsimeroi Hatchery.

662,500 eyed eggs shipped to Pahsimeroi Hatchery.

375,028 eyed eggs shipped to Dworshak Nat'l Hatchery.

125,055 eyed eggs shipped to Hagerman Nat'l Hatchery.

2,325,429 total eggs shipped.

4,614,863 eggs kept at Rapid River.
